AMENDMENTS TO THE CLAIMS

1 (Currently Amended) A magneto-optical imaging method comprising:

- generating a polarized incident light beam by a light source,

- positioning, close to a target material, a substantially plane face of a magnetic active material suitable for producing a Faraday rotation in a the polarized light beam,

- generating an exciting magnetic field of angular frequency ω in the target material,

- directing ~~a~~ the polarized incident light beam, through the active material, toward the target material,

- ~~detecting, using photodetector means, a reflected beam corresponding to the reflection on a reflecting surface located between the active material and the target material, and~~

- observing the angle of Faraday rotation in the reflected beam, with respect to the incident beam, which is created in the active material by an interfering magnetic field produced by the target material, wherein said method also comprises:

- modulating the luminous intensity of the polarized light by the light source stroboscopy,

- lock-in detecting by photodetector means, a reflected beam corresponding to the reflection on a reflecting surface being located between the active material and the target material, and

- determining the amplitude and the phase of the interfering magnetic field, from the detected luminous intensity of the reflected beam, function of the observed angle of Faraday rotation,

- the Faraday rotation of the active material ~~is~~ being substantially proportional to its magnetization when it is subjected to an interfering magnetic field, perpendicular to

said face and varying in a minimum range extending between substantially ~~-1~~ -100 Oersted and substantially ~~+1~~ +100 Oersted~~, and~~

~~the value of the magnetization of the active material, under the effect of the interfering magnetic field, is determined based on the value of the angle of the Faraday rotation~~.

2. (Previously Presented) The method according to claim 1, wherein the exciting magnetic field is generated by means of an inductor energized with a variable exciting current.

3. (Original) The method according to claim 2, comprising a measurement, using lock-in detection, of the variation of the phase of the interfering magnetic field with respect to that of the exciting current.

4. (Canceled).

5. (Previously Presented) The method according to claim 1, wherein the incident beam is amplitude-modulated at the same frequency as that of the exciting field.

6. (Currently Amended) A magneto-optical imaging device, for forming an image of a target material, said device comprising:

- an active material, comprising a substantially planar face, which is magnetic and suitable for producing a Faraday rotation in a polarized light beam,
- means for generating an exciting magnetic field with angular frequency ω in

the active material and in the target material, when the imaging device is located close to this target material,

- a light source for directing a polarized incident light beam, through the active material, toward the target material when the imaging device is positioned close to this target material, the light source generating the polarized incident light beam and modulating the intensity of the polarized light beam by stroboscopy,

- photodetector means, for detecting a reflected beam corresponding to the reflection, after passage through the active material, of the incident beam on a reflecting surface, wherein the Faraday rotation of the active material is substantially proportional to its magnetization when it is subjected to an interfering magnetic field produced by the target material, perpendicular to said face and varying in a minimum range extending between substantially ~~+1~~ -100 Oersted and substantially ~~+1~~ +100 Oersted, lock-in being detected by the photodetector means with a reflective beam corresponding to the reflection on a reflecting surface located between the active material and the target material, the amplitude and the phase of the interfering magnetic field being determined from the detected luminous intensity of the reflected beam, function of the observed angle of the Faraday rotation.

7. (Previously Presented) The device according to claim 6, comprising:

- an inductor energized with a variable exciting current, for generating the exciting magnetic field, and

- modulation means of the incident beam for amplitude-modulating the latter at the same frequency as that of the exciting field.

8 (Previously Presented) The device according to claim 7, comprising calculation means for determining, based on the value of the angle of the Faraday rotation, the value of the magnetization of the active material under the effect of an interfering magnetic field produced in the active material by the target material, when the imaging device is positioned close to this target material